United States Department of the Interior

FISH AND WILDLIFE SERVICE

Ecological Services
4000 Morrie Avenue
Cheyenne, Wyoming 8200 1

ES-6141 1
pd/W.06/wy2055.pd

November 30, 1998

Mr. Peter F. Poolman
Chief, Environmental Compliance Branch
U.S. Army Corps of Engineers
Walla Walla District
201 North Third Avenue
Walla Walla, Washington 99362-1876

Dear Mr. Poolman:

Thank you for the Biological Assessment for the Jackson Hole Environmental Restoration Project, Snake River, Teton County, Wyoming, received by our office on October 26, 1998.

Based on the information provided in the Biological Assessment, and a fax tramission from Mr. Scott Ackerman of your staff dated November 30, 1998, we concur with your assessment that the project, as described, may affect, but is not likely to adversely affect the threatened bald eagle (*Hailieetus leucocephalus*), peregrine falcon (*Falco peregrinus*), whooping crane (*Grus americana*), grizzly bear (*Ursus arctos*) and gray wolf (*Canis lupus*). However, if the scope of the project is changed, or the project is modified, in a manner that you determine may affect a listed species, this office should be contacted to discuss consultation requirements pursuant to section 7(a)(2) of the Endangered Species Act of 1973, as amended.

We appreciate your efforts to ensure the conservation of endangered, threatened and candidate species. If you have further questions on this subject, please contact Pat Deibert of my staff at the letterhead address or phone (307) 772-2374, extension 26.

Sincerely,

Michael M. Long
Field Supervisor
Wyoming Field Office

Mr. Peter Poolman
U.S. Army Corps of Engineers

cc: Director, WGFD, Cheyenne, WY
Nongame Coordinator, WGFD, Lander, WY

DEPARTMENT OF THE ARMY
WALLA WALLA DISTRICT, CORPS OF ENGINEERS
201 NORTH THIRD AVENUE
WALLA WALLA, WASHINGTON m-1878

Reply To
Attention Of:

October 19, 1998

Planning Division

Mr. Michael Long, Field Supervisor
Wyoming Field Office
U.S. Fish and Wildlife Service
Ecological Services
4000 Morrie Avenue
Cheyenne, Wyoming 82001

Dear Mr. Long:

Pursuant to Section 7(c) of the Endangered Species Act, we request your review and informal consultation on the proposed project as described below and concurrence on our "May *Affect But Is* Not Likely To *Adverse/y Affect*" determination.

Project Title

Jackson Hole Environmental Restoration Project, Snake River,
Teton County, Wyoming

Project Purpose, Location, and Actions

Purpose

The following synopsis was derived from Appendix B Engineering (Draft) from the "Jackson Hole, Wyoming, Environmental Restoration Feasibility Study" which has already been received by your office. This synopsis does reflect some minor changes which were added after Pat Deibert received and commented on the initial draft of this document.

The purpose of the Jackson Hole, Wyoming, Environmental Restoration Project is to improve riparian and riverine habitats which have degraded over the years. The Snake River, in. this area, is confined by levees that concentrate the river flows causing excessive erosion of existing vegetation and wildlife habitat.

In an effort to protect the remaining vegetation and encourage growth of new vegetation, several tools for protection and environmental restoration were developed in this study.

Location

The proposed work area is located on the Snake River near the towns of Wilson and Jackson in Teton County, Wyoming. Area 1 is located in sections 13, 14, 23 and 24, Township 40N, Range 117W. Area 4 is located in sections 2, 3, 10 and 11, Township 40N, Range 117W. Area 9 is located in sections 13, and 24, Township 41 N, Range 117W. Area 10 is located in sections 5, 6, and 7, Township 41 N, Range 117W.

Tools for Restoration

The project involves five restoration tools that were adopted from other river restoration projects. Due to the extreme nature of river conditions, each restoration tool was designed to withstand high-river forces. The restoration tools consist of gravel removal, brush fences, anchored root wad logs, rock grade control, and spur dikes.

a. Gravel Removal

The functions for gravel removal consist of improving fish habitat, maintaining channel capacity, increasing channel stability, and improving sediment transport'. Three different gravel removal tools would be used to perform these functions. They include channel capacity excavations, side pools, and sediment traps.

(I) Channel Capacity Excavations

One of the primary objectives of the project is to increase the vegetation between the levees. If this objective is achieved, then the flow capacity of the river will diminish. In order to maintain the current flow capacity, it would be necessary to remove some of the existing riverbed material. The removal of riverbed material would be accomplished with channel capacity excavations, which would be needed in areas 4, 9, and 10. No channel capacity excavations are planned for area 1. Area 1 currently has a very large flow capacity and has room to allow for the projected growth of vegetation without creating a potential flood hazard.

Channel capacity excavations would be designed to maintain the 1 OO-year flood while considering the projected amount of vegetative growth between the levees. The amount of vegetation corresponds to the projected amount of channel blockage.

Excavations would vary in depth from 0 to 8 feet with an average depth below ground of 4 feet. Excavations would extend down to the adjacent thalweg.

In order to maintain channel bottom stability, the channel bottom would be armored with 4-inch-plus material obtained from the excavation. The armor material would be placed in rows spaced 10 feet apart on center aligning perpendicular to the channel centerline. The rows would have a cross-sectional area equivalent to 10-square feet. This would provide a volume of armor equivalent to a l-foot-thick layer of armor on the channel bottom.

(2) Side Pools

Side pools would be excavated in the existing gravel bars to provide pools for fish habitat. The gravel bars are very expansive, generally up to 600 to 800 feet in width and devoid of vegetation. To minimize excavation, side pools would be sited in existing low-lying areas.

Pools would be excavated to provide approximately 4 feet of water depth during low flow, In order to create a natural appearance and to maximize wildlife benefits, the slopes of the pools would be varied. The upstream end of the pools would be protected with a 12-inch-thick layer of cobbles.

Supply channels would be needed to provide water to and from the side pools. Existing secondary channels would be cleared through excavation, as'much as possible, to allow water to run to and egress from the pools. In areas where no secondary channel exists, new channels would be excavated. To add fish value, the depth of excavation would be varied from 1 to 4 feet below the low flow water line. The estimated average depth of these excavations is 1 foot with a bottom excavation width of 4 feet.

(3) Sediment Traps

Sediment traps would be excavated to catch bed load material, thereby, lessening downstream sediment deposition and maintaining the channel capacity. A secondary benefit would be improved fish habitat from the creation of a large pool.

Sediment traps would vary from 20 to 35 acres in surface area and would be excavated to the adjacent thalweg elevation. The depth of excavation generally varies from 2 to 6 feet with an average of 4 feet. The side slopes would be varied. The bottom of the sediment traps would be armored with 4-inch-plus cobble.

b. Brush Fences

Brush fences have two main purposes: reestablish island riparian habitat and protect existing island riparian habitat. Brush fences and woody debris placement would be used to slow water velocities and reduce energy impacting the islands. The intent of slowing the water velocities is to decrease-island erosion and induce sedimentation to augment the island-building processes.

The brush fence tool was developed to collect floating woody debris to form a shield that would protect existing riparian zones and induce sedimentation downstream of the brush fence. The brush fences would be situated to protect islands with existing riparian habitat. They would also be situated along barren islands to increase sedimentation and vegetation growth.

There are two types of brush fence designs. One brush fence design consists of piling with lateral cables strung between the piling. The other brush fence design is constructed of riprap.

(1) Piling Brush Fences

Pipe (6 inch) and "H" pile (8x36 and 10x42 inches) would be used with wire rope to construct the piling brush fences.

(2) Rock Brush Fences

The purpose for considering a rock brush fence is to investigate an alternative to a piling fence that would be suitable for withstanding the high river forces The rock brush fences would consist of riprap with side slopes of 2 horizontal to 1 vertical and an embedment depth of at least 4 feet below the adjacent ground line. Riprap would be placed to a top elevation of 1 foot beiow the 100-year flood.

c. Anchored Root Wad Logs

Root wad logs would be anchored to the river bottom. These two methods would be employed in their placement: staggered placement and scattered placement. Staggered placement would be used to protect existing islands and to encourage the growth of new islands. Whereas, scattared placement would be used to increase the amount of woody debris in the river system.

d. Rock Grade Control

A rock grade control structure would be used in area 9 to keep the river from eroding through existing riparian habitat. The rock grade control structure would consist of riprap. The top surface of the rock grade control structure would be flush with the existing channel bottom. Rock grade control structures may be constructed in other areas to prevent channel down-cutting.

e. Spur Dikes.

Spur dikes would be situated along the levees for fisheries habitat enhancement and bank protection creating flow diversity that provides relatively slack water where steady current was found before.

There are two kinds of spur dikes under consideration, kickers and bank barbs. Kickers, which are the larger of the two, would be composed of riprap armor with a random fill core and extend approximately 56 feet into the. river. Bank barbs would consist of only riprap and extend approximately 26 feet into the river. The larger size of the kicker would provide a scour hole at the end of the kicker and more slack water for' fish habitat.

Construction

Due to the varying nature of site conditions, a Corps hydrologist and a Corps biologist would be on site to ensure that the project was constructed as planned. It is anticipated that the work would be contracted out through an equipment rental contract. Environmental stipulations will be addressed in this contract. Corps personnel will provide oversight of the ongoing work.

a. Gravel Removal

Work would be accomplished with excavators, loaders, dump trucks, and grizzlies. Depending on Wyoming State Department of Environmental Quality recommendations, construction equipment would not be operated in flowing water. In order to keep the equipment out of flowing water, it may be necessary to divert the water away from the excavations. This would be accomplished with diversion dikes and/or diversion channels. Diversion dikes would be constructed with existing riverbed material adjacent to the dike.

b. Piling Brush Fences

Piling brush fences would be constructed by first excavating out the high points along the fence alignments so that the bottom wire can be installed. Next, the piling would be driven to the required penetration depths with a backhoe mounted with a vibratory hammer. Holes would then be drilled through the piling to thread the wire rope through. At every fifth piling, a wire rope connection would be welded to the piling. After installation of the wire rope, trenches would be backfilled and compacted.

c. Rock Brush Fences

A trench along the alignment would be excavated to a depth of 4 feet below the adjacent ground line with an excavator. The trench would be wide enough to allow for the footprint of the structure, Material from the excavation would be hauled off site.

d. Anchored Root Wad Logs

Root wad logs, existing on site, would be used as much as possible to minimize the expense of hauling logs to the site. Logs would be transported to the site by truck, rubber-tired skidder, or helicopter. Specific source locations would be designated in the field by a Corps representative. Log removal will not be performed in areas where the action would promote excessive erosion or damage existing riparian vegetation.

A backhoe may be used to level out an area to place the logs so that the log would have uniform bearing along its trunk and its root would be partially embedded. The log would be fastened down with toggle bolt anchors. The anchors would be driven into the ground with a jackhammer and a jack would be used to pull up on the anchors locking them into place. The cable would be tied around the log and synched down to tighten the log to the ground.

e. Rock Grade Control

The footprint of the rock grade control structure would be excavated. Material resulting from the excavation would be hauled off site. Riprap would be placed in the excavation area by carefully keying the riprap together to minimize voids to form a locked mass.

f. Spur Dikes

The spur dikes, which include both kickers and barbs will be constructed with an excavator on the levee. Dump trucks would haul materials to the spur dike location along the top of the levees.

Construction Material;:

a. Riprap

The contractor would be responsible for selecting riprap sources that would provide the necessary quantity and quality of materials meeting the requirements. Riprap can only be obtained from a permitted quarry site. The contractor would be responsible for making arrangements with the quarry operators concerning availability of riprap. One potential source would be the quarry reject pile at Walton Quarry owned by the State of Wyoming. For *more* information regarding this site, contact Teton County. The contractor would comply with all applicable local, State, and Federal laws and regulations including, but not limited to, the Clean Water Act; Resource Conservation and Recovery Act; and Comprehensive Environmental Response, Compensation, and Liability Act.

b. Woody Debris

Woody debris would be, obtained from on-site and off-site sources selected by the contractor. It is estimated that 3,000 root wad logs, acceptable for construction, are scattered along the river. An additional 200 root wad logs are piled at Walton Quarry. The woody debris available on site would be used first. Additional woody debris would be obtained off site. Other possible sources for off-site woody debris include Jackson Lake, Palisades reservoir can not be used as a site due to the presence of whirling disease. Because of the possibility of whiling disease in other areas, approval for root wad log acquisition sites will be made by U.S. Fish and Wildlife Service or Wyoming Game and Fish Department.

Root wad logs of deciduous and coniferous tree species would be acceptable. They would be at least 8 feet in length and no longer than 20 feet. The stem would be at least 12 inches in diameter and the roots would remain intact.

Construction Access

Access to the work areas will generally originate from the public highway system and traverse over existing easements to the levees. The roads for the levee access easements are typically dirt roads and are suitable for moving construction equipment. For cost estimating. purposes, it is assumed that gravel resulting from the excavations would be hauled 12 miles from each area.

Flows in the Snake River are too high to allow for construction access from only one side of the river so access from both sides of the river would be necessary. For convenience, the following describes the access points by the west access and the east access.

The sensitivity of some riparian areas will require some coordination to determine the best access route. A Corps biologist should be consulted as to the best access route through riparian vegetation so impacts to these areas can be minimized.

a. Area 1

(1) West Access

The west portion of area 1 would be accessed from Fall Creek Road and involves two different access points. The first access point is for the downstream work area. The access originates off of Fall Creek Road and follows a dirt road to Sewell Levee. it would then continue along Sewell Levee to the work area. The access to the upstream work area would also originate from Fall Creek Road and would follow a dirt road to the work area. This access will need to be determined in the field.

(2) East Access

The east portion of area 1 would be accessed from the north from South Park Loop along a l-mile stretch of gravel road to the Lower lmenson Levee. Once on the levee, construction equipment would follow the levee until it terminates. After the levee ends, access would continue through existing shrubs and trees and over gravel bars. The contractor would coordinate with the Corps in the field to determine the optimum routes for minimizing disturbances.

6. Area 4

(1) West Access

Access to area 4 would be from Fall Creek Road along an existing gravel road. This access crosses an existing bridge and terminates onto the channel bottom. The, contractor would then navigate across gravel bars and around existing vegetation.

(2) East-Access

The east portion of area 4 would be accessed from the Federal Levee Extension. Construction equipment would leave the public highway, approximately 4 miles to the north, and follow the left bank to the Federal Levee Extension to the work area.

c. Area 9

(1) West Access

Of the four areas, area 9 is the most accessible. Access for the west portion of area 9 would come from State Highway 390, from which, the contractors would follow an existing dirt road to the Right Bank Federal Levee.

(2) East Access

Access to the east portion of area 9 would be from State Highway 22, which provides access to the Left Bank Federal Levee. From the Left Bank Federal Levee, the contractor could select an access point to the specific work areas.

d. Area 10

(1) West Access

Most of the work in area 10 lies to the west of the river and would be accessed via the Right Bank Federal Levee. From the levee, construction equipment would traverse across existing grave! bars and through brush to the specific work areas. Equipment could reach the levee from both the upstream and downstream directions. The downstream end of the levee would be accessed from a dirt road that runs for about three-fourths of a mile from Slate Highway 390 to the Right Bank Federal Levee.

(2) East Access

The work on the east portion of area 10 would be reached from the downstream direction or the upstream direction. From the downstream direction, equipment would travel from State Highway 22 and up the Left Bank Federal Levee for approximately 3 miles to the work areas. From the upstream direction, equipment would travel from Cattleman's Bridge, which is approximately 2 miles away, to Hanson Levee. The spur dikes located to the north would be accessed from Spring Gulch Road, which is about 2 miles away.

Stockpiling of Materials and Staging Areas

Some excavated materials will be temporarily stockpiled on the work sites during the sorting operation. All materials stockpiled onsite would be removed by the end of the current work window. The contractor will be responsible for off-site stockpiling of excavated materials. Excavated material would be stockpiled off-site at a permitted processing facility.

Equipment staging areas will have to meet State and Federal standards for hazardous waste spill containment. Equipment may be staged on-site or off-site depending on environmental conditions. No equipment can be parked on-site past the end of the current work window. The Corps in conjunction with Teton County Natural Resource District personnel would work to locate and setup equipment staging areas whether on or off-site. Any damage or noxious weed infestations caused by equipment use will be mitigated by appropriate restoration or weed control techniques.

Basic Construction Schedule

It is anticipated that one area would be developed per work season. There would be up to two years between construction of structures in one area and the work in the next area of priority. Work is expected to progress over four to eight years.

Yearly Maintenance of Structures

Once work is completed at each area, yearly maintenance will be needed to maintain the integrity of the structures. Maintenance responsibilities have yet to be determined between the Corps and the sponsor. Maintenance will be variable depending on the river/debris flows in any particular year. Maintenance could be performed on any structure which is constructed as part of this project. The maintenance may be as little as replacing a few pieces of fabric and tightening cables

on a brush fence. The maintenance may require total reconstruction of the structure. Sediment traps will also have to be cleaned out periodically. Spur dikes, rock grade control, and channel excavations are the only work described that are expected to need little or no maintenance. The maintenance performed on the other structures will have to be scheduled on a yearly basis. Depending on availability of funds and the level of damage, maintenance work would target those structures that are providing the highest benefit for protection/enhancement. At a minimum, those structures which are damaged and creating a safety hazard would be of highest priority for repair or removal. A biologist would also be needed to monitor and direct certain maintenance activities to insure the activity is not degrading existing habitat or disturbing wildlife species which may also be present.

Listed Species and Effects

The following species list was obtained from the U.S. Fish and Wildlife letter dated June 18, 1998. The discussion is based on the above letter, personnel observations during a site tour on July 7 and 8, 1998, and personal communications with Pat Deibert (USFWS), Rik Gay (Teton County Conservation District), Rob Gipson, and John Keifling, fish biologists (Wyoming Fish and Game Department), Dave Moody, wildlife biologist (WGFD) and the wildlife biologists at the Jackson Office WGFD. The following references were also used:

Corps of Engineers, Walla Walla District, 1994, "Jackson Hole Flood Protection: Levee Access Improvements, Draft Environmental Assessment."

Corps of Engineers, Walla Walla District (1992) Draft "Bald Eagle Management Plan, Jackson Hole Project, Wyoming."

Corps of Engineers, Walla Walla District, 1990, "Jackson Hole, Wyoming, Flood Protection Project: Final O&M Decision Document and EIS."

Federal Threatened and Endangered Species Listing for Area

1. Grizzly Bear (Ursus arctos horibilis)
2. Gray Wolf (Canus lupus)
3. Whooping Crane (Grus americana)
4. Bald Eagle (Haliaeetus leucocephalis)
5. Peregrine Falcon (Falco peregrinus)

Discussion of Alternatives

No Action

If th'e described work is not performed, the riverine corridor will continue to degrade. The presence of the levee system has already degraded the habitat value of the river corridor and associated wetlands. Not only has the river corridor between the levees degraded, the wetlands that used to be associated with river flooding dynamics have been isolated. This isolation has caused a reversion to upland forest types and meadow grasses. For endangered species, several direct impacts have been realized. The loss of mature riparian forest has reduced the nesting and roosting habitat for bald eagles. The loss of wetlands has resulted in the loss of habitat that may have been used by whooping cranes during migration.

Proposed Alternative

The restoration work presented here is an ambitious undertaking for restoration projects of this kind; The work being proposed will not solve all of the ecological problems caused by the levees. The proposed work will be addressing only restoration work within the riverine corridor. If the proposed work is successful in reestablishing riparian vegetation at the chosen locales, bald eagle habitat will definitely be improved. The other listed species will only gain marginal benefits if any. The proposed work, if successful, will provide a spring board for future projects of this type in the region. Some of this future work will address the restoration of wetlands which will improve the potential habitat for migrating whooping cranes

The restoration work has been divided into four alternatives based on construction materials used. All alternatives will have maintenance performed to keep them in place for the 50 year life of this project. Some alternatives may require more maintenance than others. Since there are no previous examples of this work to compare to, it is difficult to discuss the outcome of one alternative over another. The work as discussed above will be performed as stated. The maintenance could involve all work areas no matter which alternative is chosen. The discussion below will address the work and the maintenance as a part of the proposed alternative no matter which materials are used.

Discussion of Work and Impacts to Species Listed Above

Basic Work Constraints

The engineering document and discussion on site made it clear that most work will only be accomplished during low flows. The reason for this is that the access to the work areas in the river with heavy equipment will only be possible when flows are low enough to cross side channels when they have little or no water flowing in them. Another reason is the depth of the excavations will be dependent on the level of the river at low flow. All of the excavations except for the sediment traps, spur dikes and

channel excavations will occur in areas which are dry or almost dry. Work on sediment traps, spur dikes and channel excavations can only occur when river levels are at their lowest, to facilitate the construction of temporary water diversions, to minimize the amount of silts being released into the stream.

River flows in this region will peak late spring and early summer depending on temperatures, and snow pack depth. Flows can change quickly during the summer with thunderstorm activity in the region. Thunderstorm activity generally lessens in late August when daytime high temperatures are lower. Mountain snow fields cease to melt at this point. This pattern usually causes river levels to drop by mid-summer. Generally, low flows can occur as early as late August, but depending on weather conditions, can occur as late as mid-October. The first significant snows usually start about mid-October. Snow depths can vary from this point on into winter depending on storm intensity. Work will be difficult in deep snow and will probably have to stop by Thanksgiving. For these reasons most work will be restricted to late summer and fall.

Existing tree and shrub removal will be kept to a minimum and avoided where ever possible. Most of the work in the trees is in conjunction with channel enhancement, pond excavation, brush fence construction, and placement of logs. Access into the sites will use existing channels where only downed trees and other flotsam will be removed. Although some trees and brush are likely to be damaged or removed by the work activity it is not recommended to try and replant these trees and shrubs. The work being performed in these areas is done to open channels, the disturbed areas should quickly revegetate naturally. Another reason for not planting is survival during the first year will be very low. The work itself is supposed to augment natural regeneration of the islands and bars in the work areas. The areas which already have vegetation will have sources for natural propagation through seeds or vegetative means. The equipment being used will take what ever precautions necessary to insure they are not picking up noxious weeds and spreading them to the work areas. Monitoring of work areas will be needed the first year after construction to insure noxious weeds are not present. These weeds will need to be eradicated if found.

Maintenance work would also have to follow this approximate schedule if heavy equipment *were* needed. Other repair could be accomplished when the structures were exposed at lower riverflows. Work on brush fences may be accomplished at any time the fence is accessible by foot or ATV.

Threatened and Endangered Species

Grizzly Bear

The grizzly bear is a resident species to the area, primarily north of the Jackson Hole area. Current management in Wyoming (WGFD) is to discourage grizzly bears from living in areas of human habitation. The last siting of grizzly bears in the Jackson area was in 1994. An adult female with 3 cubs of the year were captured near the Ford property and relocated to an area north of Jackson Hole. The female was attracted to the area because 15 cows, which were killed by lightning, were buried on a site near the Ford property. The biggest concern with this species is attracting them to the Jackson area. The chances a bear will be seen on site would be very rare but precautions are needed since late summer/fall is the time of highest bear activity as they 'search for food, in preparation for hibernation. Workers should be directed not to leave food and other garbage on site that may attract bears to the area. Some of these stipulations could include keeping the work site free of food and garbage, and storing trash and food in approved containers; If a grizzly bear is seen during work activities, Wyoming Fish and Game and US Fish and Wildlife personnel will be contacted. Since there is only a slight chance of human-grizzly bear encounters the proposed work is unlikely to have an impact on the grizzly bear population.

The grizzly bear will not see direct benefits from the work since the Jackson Hole area has a relatively high human population. Whether the work is successful or not, grizzlies which enter and stay in the area will continue to be relocated. The fisheries benefits will improve the overall health of the river system, which may help the bears indirectly.

The long term maintenance of these structures should not have any impact on the grizzly bear. With the management status and nature of the grizzly bear, the added human disturbance is unlikely to directly impact the bear. Maintenance work would have to follow the same stipulations for the project work regarding food and garbage. If a grizzly bear is seen during maintenance work activities, Wyoming Fish and Game and US Fish and Wildlife personnel will be contacted.

Gray Wolf

Gray wolves are not habitat dependent. They might move through the area in search of food, but the chances of this occurring is very rare. No confirmed sightings have been documented in'the area around Jackson. The nearest sightings were recorded in the upper Green River drainage east of Jackson. For these reasons it is unlikely the project will have any impacts on local wolf populations. If a gray wolf is

seen during work activities, Wyoming Fish and Game and US Fish and Wildlife personnel will be contacted.

The gray wolf is considered an experimental population. Like the grizzly bear, management provisions have been made to address conflicts with humans or human activities such as ranching. The Jackson Hole area would be an area where human-wolf encounters would be discouraged. The wolves would use the riverine corridor to travel through the area. Whether the work is successful or not, gray wolves which enter and stay in the area will be relocated. With the limited amount of restoration, the project is unlikely to provide any additional benefits for the wolf population as a whole.

The long term maintenance of these structures should not have any impact on the gray wolf. With the management status and nature of the wolf, the added human disturbance is unlikely to directly impact the wolf. The wolves may learn to avoid the area due to the human activity. If a gray wolf is seen during maintenance work activities, Wyoming Fish and Game and US Fish and Wildlife personnel will be contacted.

Bald Eagle

The bald eagle is the only avian species listed which has nesting habitat in the work area. Bald eagles are known to nest in areas 4, 9 and 10. They also nest in the vicinity of area 1. Nesting usually occurs from February through August.

In area 1 a bald eagle nest has been mapped, in the past, toward the north end of the trees on the east side of the channel. No active nests have been located in this area this year.

Bald eagles are nesting near area 4.. Two active nests are located on the east side of the river. One nest is located about 2 1/2 to 3 miles south of the Wilson Bridge, 50 yards outside the levee. The second nest is about 1 1/2 miles south of the first nest, three to four hundred yards outside of the levee. Both nests are on the Ford property.

Bald eagles are nesting near area 9. The nest is located on the west side of the river, outside of the levee, near human habitation.

Bald eagles are nesting near area 10. The nest is in a grove of trees on the north side of the Gross Venture river near the mouth. Both eagles were spotted during our tour.

The letter received from the U.S. Fish and Wildlife Service stated that "no work activity within one mile of any active nests would occur between February 1 and August 15th." For this reason, work will only be allowed within one mile of active nests (current year) from August 16th to January 31st. Changes to this work window must have prior approval from the U.S. Fish and Wildlife Service. No other constraints have been applied to nesting bald eagles. Since it is still unknown when work will actually commence, the project area will have to be surveyed for bald eagle nests, each spring of the year when work is to be performed.

Due to the equipment access restrictions stated under work constraints, construction and excavation activities should not conflict with nesting. All standing mature trees in the work area will be avoided if at all possible. Trees which are leaning or already on the ground may be moved aside to facilitate excavation and construction. All of the known eagle nesting trees are currently located outside of the levee system. The biologist onsite will work with the contractor to avoid areas where equipment could damage mature trees.

Bald eagles will also be wintering in the area as long as there is a food source. The biologist on site would monitor for the presence of eagles and provide guidance to the work crews to avoid activities which might disturb the eagles. It is not anticipated that the work activity will cause additional disturbance to the eagles, using the area, beyond the human disturbance already occurring through normal recreational use.

Bald eagles are likely to be found in or near the work area most of the year. The chances of the project having any impact on the bald eagle are minimal due to the timing of the active work. There will likely be no direct impacts (mortality, loss of nest, etc.) or long-term population impacts (reduced reproduction, etc.). There may be some minor displacement to foraging or roosting eagles. For these reasons the project work May *Affect* But *Is* Not Likely To *Adversely Affect* bald eagles using the area.

If the project is successful and riparian vegetation can reestablish, bald eagle nesting and roosting habitat will improve. These benefits will not be realized for 30 to 50 years when new cottonwood trees reach maturity. This will be offset somewhat by the continuing maintenance activities which will occur on a yearly basis. The main impact will be the added human activity. The timing/buffer zone of the maintenance work will be similar to the project work. This should alleviate impacts to the nesting population. The added human activity may cause eagles to avoid the area for foraging during ongoing maintenance activities. The biologist on site would monitor for the presence of eagles and provide guidance to the contractor to avoid activities which might disturb the eagles. For this reason the maintenance work will likely have no direct impacts (mortality, loss of nest, etc.) or long-term population impacts (reduced reproduction, etc.). There may be some minor displacement to foraging or roosting

eagles. For these reasons the maintenance 'work May *Affect But* Is *Not Likely To Adverse/y Affect* bald eagles using the area.

Whooping Crane

Whooping cranes do migrate through the area of Jackson Lake during early spring. The birds are migrating through the area to Gray's Lake and will stop briefly at Jackson Lake. There is a chance a whooping crane may stop along the river in the Jackson area, especially if sandhill cranes are using the area. The chances of a whooping crane stopping in the work area would be extremely rare. The cranes would be attracted to wetland pastures and not the riverine corridor between the levees. The confluences of Blue Crane and Fish Creeks are the only two areas which might attract cranes. Most of the work will be taking place between August 15th and November 15th because of concerns with bald eagle nesting and big game migration. For these reasons the project will have no impacts on the whooping crane population.

There is a small chance that a whooping, crane could land and feed in the riverine corridor in spring. If a whooping crane is seen during work activities, work will cease. Wyoming Fish and Game and US Fish and Wildlife personnel will be contacted. Work will resume only after USFWS personnel have been consulted on how to proceed.

If the project is successful the whooping crane habitat will not benefit from the vegetation growth derived from this work. If the work leads to future restoration in the area, then wetland habitats outside of the levee may improve which will benefit whooping cranes. The ongoing maintenance work will be occurring at the same time as the project work (summer-fall). For this reason the maintenance work should have no impact on the whooping crane population.

If a whooping crane is seen during maintenance activities, *work will cease.* Wyoming Fish and Game and US Fish and Wildlife personnel will be contacted. Work will resume only after USFWS personnel have been consulted on how to proceed.

Peregrine Falcon

Peregrine falcons are residents and migratory to the area. Two known eyries are located in the vicinity of the Grand Tetons. Peregrines do use the river corridor for foraging. Currently, one peregrine forages in the South Park area near Fish Creek. This area is near the west side of area 4. Peregrines will leave the region soon after nesting is complete., The timing of nesting is similar to that of the bald eagle. They could be in the area any time between February and August. The biologist on site

would monitor for the presence of falcons and provide guidance to the contractor to avoid activities which might disturb the falcons.

Since the bulk of the project work will occur after nesting season, the chance of the project impacting the foraging of peregrines would be minimal. For this reason the project work May *Affect* But *Is Not* Likely To *Adversely Affect* peregrine falcons using the area.

If the project is successful, the peregrine falcon will not realize any direct benefits. The falcon could see indirect benefits if passerine bird populations increase as a result of the new vegetation growth. This will be offset somewhat by the yearly maintenance activity needed to maintain the protective value of the construction work. Since most of the maintenance work will occur after nesting season, the chance of the maintenance work impacting the foraging of peregrines would be minimal. For this reason the maintenance work May *Affect But Is Not Likely To Adversely Affect* peregrine falcons using the area.

Conclusion

Based on the above lack of anticipated negative impacts, it is determined that the above described actions "May *Affect But Is* **Not** *Likely To Adverse/y Affect*" bald eagles and peregrine falcons use of the area or their habitats. The described action will have no effect on gray wolves, grizzly bears, and whooping cranes use of the area or their habitats.

If you have any questions or desire additional information about the proposed action, please contact Mr. Scott Ackerman at 509-527-7272.

Sincerely,

Peter F. Poolman
Chief, Environmental Compliance Branch

ACKERMAN/PD-EC/ss

SMITH/OD-RF

MACDONALD/PM

CANNON/PD

POOLMAN/PD-EC

PO-EC FILES

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CENWW-OD-RF (Smith)

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ecological Services
4000 Morrie Avenue
Cheyenne, Wyoming 8Z001 .

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pd/WY1782/tcnrdwallacoe.pd

June 18, 1993

Mr. Carl Christianson
U.S. Army Corps of Engineers
Walla Walla District
20 I North Third Avenue
Walla Walla, Washington 99362-1876

Dear Mr. Christianson:

Thank you for your letter of May 21, 1998, for the Snake River riparian and restoration project in Teton County, Wyoming.

In accordance with section 7(c) of the Endangered Species Act of 1 973, as amended (Act), my staff has determined that the following threatened or endangered species may be present in all project areas.

Species	Status	Expected Occurrence
Bald eagle (*Haliaeetus leucocephalus*)	Threatened	Nesting. Winter resident. Migrant.
Peregrine falcon (*Falco peregrinus*)	Endangered	Nesting. Migrant.
Whooping crane (*Grus americana*)	Endangered	Resident. Migrant.
Gray wolf (*Canis lupus*)	Experimental (Formerly Endangered)	Potential resident.
Grizzly bear (*Ursus arctos horribilis*)	Threatened	Resident.

There are bald eagle nests located in project areas 1 and 10. Therefore, all activities associated with areas 1 and 10 should not occur until after August 15 and be completed by February 01 to prevent disturbance to these nests. Bald eagle nests are also adjacent project areas 4 and 9. All activities associated with these areas that xc within one mile of an active bald eagle nest must also be restricted to the time period specified above. If it is determined that the proposed

We are planning a sire visit and complete analysis of this project area this upcoming summer. At that time, we may have additional recommendations which we will immediately forward to your office. If you have any questions please contact Pat Deibert of my staff at the letterhead address or phone (307) 772-2374.

Sincerely,

Mary E Yennerigo

for Michael M. Long
Field Supervisor
Wyoming Field Office

cc: Director, WGFD, Cheyenne, WY
Nongame Coordinator, WGFD, Lander, WY